BEFORE THE
FEDERAL COMMUNICATIONS COMMISSIONS
WASHINGTON, D.C. 20554

IN THE MATTER OF:	)	
	)	
AMENDMENT OF PART 90 OF THE	)	
COMMISSION'S RULES AND POLICIES	)	
FOR APPLICATIONS AND LICENSING	)	**WT Docket No. 01-146**
OF LOW POWER OPERATIONS IN THE	)	**RM-9966**
PRIVATE LAND MOBILE RADIO	)	
450-470 MHz BAND	)	

COMMENTS OF HEXAGRAM, INC.

Hexagram, Inc. (Hexagram) submits these comments in response to the FCC's Notice of Proposed Rulemaking (NPRM) in the above-captioned matter.[1] In these comments Hexagram supports the efforts made by the Commission to re-designate 20 MHz of spectrum and provides comments on a few issues raised by the Commission.

I. Summary

Nothing in the NPRM shows any compelling interest that overrides the interests of low power users of Group A frequencies sufficiently to merit the enormous increase in power that is proposed. Raising power levels from 2 watts to 5 watts is slight, but the proposed increases to 20 watt and 500 watt maxima tread heavily upon genuine low power users.

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[1] *Notice of Proposed Rulemaking, FCC 01-199 (Rel. July 24, 2001).*

Low power users should also be assured that protection of licensed facilities will be enforced by restricting Group C itinerant licensees to non-interfering uses and defining Group A "urban" boundaries by MSA.

Finally, Group B & D frequencies should be designated for limited duty cycle transmissions. Group D frequencies should take advantage of such limited duty cycle operations and be made available to all low power users.

II. Introduction

Hexagram is among the oldest vendors of automatic meter reading systems in the nation. Since 1984, Hexagram has installed nearly three million devices for collection and reporting of utility meters throughout the nation. Nearly 300,000 devices employing a fixed RF network are currently deployed by Hexagram with more than 400 licenses issued to Hexagram and its customers. These are Part 90 transmitters currently operating under the low power rules.

Hexagram products efficiently collect and deliver utility consumption information that is essential for utility management

and revenue collection. Hexagram products are ubiquitously deployed nationwide in both residences and businesses. These products are powered by a lithium battery under a very low duty cycle and transmit but a few milliseconds each day. Hexagram equipment is usually located in areas of limited or restricted access. In addition, there is a relatively high labor cost associated with installation in these locations.

The newly competitive energy industry has made direct automatic meter reading a critical element in controlling consumer energy cost. Energy and water companies have incurred large installation costs per unit, with the intention of using such units maintenance free for several decades. Hexagram estimates that the life span of its units can exceed 20 years. The embedded costs for such units are amortized accordingly by utility companies. The immediate costs faced by utility companies, should they be required to replace or update automatic meter reading units, would be impractically high.

Hexagram comments on the Commission's proposed rules in an effort to explain the issues faced by utility companies and other telemetering users and manufacturers.

III. Group A Proposals

A. Raising power from 2 watts to 20 and 500 watts.

Nothing in the record justifies the increase of low power frequencies to full power. Although the NPRM recognizes that "the Commission gave existing low power licenses the option of increasing power",[2] such increase should not result in the displacement of low power licensees by high power new-comers. The Notice of Proposed Rulemaking refers to an observation "that a slightly higher power would be helpful in industrial and manufacturing complexes."[3] But, there is no justification for why these new "high power" limits would apply to greater than half of the 90 low power industrial channels.

Any expansion in a channel's service area -- through power increases -- would severely limit frequency reuse of those channels by current licensees and limit available frequencies. The Commission has recognized that a balance must be struck between "the benefits of low power frequency reuse with the need for sufficient signal levels to cover a licensee's operating area."[4] However, the Commission's proposal to raise maximum power to 20

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[2] Notice of Proposed Rulemaking at para. 3.

[3] Notice of Proposed Rulemaking at para. 8.

[4] *Notice of Proposed Rulemaking at para. 15.*

watts ERP[5] as well as 500 watts ERP[6] does not strike a balance between users, but rather subordinates the use of these frequencies by hundreds of thousands of low power users to a new high power service. The interests of low power users are being seriously disadvantaged. The end result is far fewer frequencies available for low power operations.

Current and future licenses and users of low power rely upon the 90 channels that are currently available for low power use. The proposals for greater power on 50 of these channels threaten existing licenses and will restrict future development for users of this spectrum. The attempts to raise power levels to ten times (and 250 times) their current power will be irreparably detrimental to low power users and their customers. With each increase in power level there is a decrease in available spectrum and area for low power licenses and users.

The Commission recognizes the potential for harmful interference to telemetering (the service provided by Hexagram) in addition to radio remote control and dock side operations.[7] It is this very interference to telemetering that Hexagram believes poses

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[5] *Notice of Proposal Rulemaking at para. 13.*

[6] *Notice of Proposal Rulemaking, p. 9, fn. 45.*

[7] *Notice of Proposed Rulemaking, para. 22.*

a significant problem under the proposed rules. The increased power limits threaten the operations of long-standing providers of service in the public interest.

Potential solutions available to other low power licensees and users would not be practical for members of the telemetering industry. As noted supra, equipment in homes and businesses is very difficult and expensive to access or replace. If other licensees on a co-channel were to increase their power, it would be impossible for telemetering users to increase their power, in turn, without entering hundreds of thousands of user premises. Since these devices are battery operated, any increase in transmission power would be technically unfeasible. Even if replacement were technically feasible, the very great cost would ultimately be borne by consumers.

B. Defining Urban Areas

The NPRM refers to "50 mile circles"[8] and Department of Commerce center coordinates for use in defining "urban areas."[9] Hexagram believes that use of these factors in defining urban areas, given the proposed power levels, have the potential for

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[8] *Notice of Proposed Rulemaking*, para. 17.

[9] *Notice of Proposed Rulemaking*, para. 16.

creating unacceptable interference in urban areas. For example, the cities of Frederick, Maryland and Fredericksburg, Virginia lie more than 50 miles from the center coordinates of Washington, D.C. However, a transmitter operating at 20 watts, or even 500 watts, in either of those two cities would have the potential to create significant disruptions to services in numerous areas between the designated center coordinate and the "non-urban" location more than 50 miles away.

Hexagram proposes adopting the Metropolitan Statistical Area (MSA) definition which the Wireless Bureau currently uses for cellular licensing as well as interactive video and data services licensing. The MSA geographical definitions would permit use of a reference system with which both the Commission and the industry are familiar. Moreover, such a geographical reference would provide appropriate protection for suburban and outlying areas that are not anchored to center coordinates of the metropolitan base, but which may also experience the same frequency use that is encountered at the geographic center coordinates.

IV. Group B Acknowledgment

The NPRM acknowledges the proposition that non-voice operations, including the operations used by Hexagram, can suffer significantly from the sharing of frequencies with voice operations.[10] Hexagram agrees. This is also a problem which concerns Hexagram should voice (or non-voice) operations be permitted at increased power levels, as proposed in Group A.

In addition, the Commission seeks comment on whether continuous or duty cycle transmission should be permitted in Group B. Hexagram notes that the use of a broadly prescribed duty cycle -- rather than continuous operations -- allows for maximum frequency reuse and genuine spectrum efficiency. Hexagram supports the use of a limited duty cycle for Group B.

V. Group C Proposal

Hexagram agrees in principle with the benefits of non-coordinated itinerant use of low power frequencies. However, it is essential for incumbents to retain the protections afforded them by the Commission's licensing process. Prior to issuing non-coordinated itinerant licenses, the Commission should ensure that licenses currently held for these frequencies are protected.

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[10] *Notice of Proposed Rulemaking, para. 19.*

Moreover, current licensees should have an effective enforcement vehicle for protecting their operations from new itinerant users. Finally, non-coordinated itinerant license equipment should be prohibited from operating in areas licensed to low power licensees.

VI. Group D

Hexagram believes that the balancing required by the re-designation of low power frequencies also merits a co-channel sharing of the Group D channels. Proposed Group D channels are currently being used in a duty cycle that is relatively short and could accommodate relocated non-voice transmissions from operations at Groups A, B, and C. Such sharing, due to the similarity in duty cycles and transmissions, would not endanger incumbent licensees on these Group D frequencies. Most importantly, such sharing would contribute to the most efficient use of spectrum by the greatest number of licensees.

VII. Conclusion

Because the interests of hundreds of thousands of energy users in the nation would be protected and better served by a restrained approach to redesignating low-power frequencies in the 450-470 MHz band, Hexagram respectfully submits that the Commission's proposed rules should be revised as provided for herein.

Respectfully submitted,

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